National Aeronautics and Space Administration

LAGNIAPPE

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Stennis earns ISO 14001 certification

Stennis Space Center, NASA's lead center for rocket propulsion testing and Earth science applications, received ISO 14001 certification for its environmental management system (EMS) June 5. Stennis is among the first of the Agency's centers to earn such recognition signifying the center's environmental management system meets the stringent standards established by the International Organization for Standardization (ISO) in Geneva, Switzerland.

The certification culminates an effort begun in 2000 as a result of a Presidential Executive Order directing all federal agencies to implement an EMS. Stennis was one of three NASA centers to participate in a national pilot program to implement an EMS using the ISO 14001 standards as a basis of the system. "NASA and NASA's

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Safety stand-down planned at Stennis

NASA and the three primary contractors at Stennis Space Center — Mississippi Space Services (MSS), The Boeing Company and Lockheed Martin Space Operations, Stennis Programs (LMSO) — will observe an unprecedented stand-down from 10 a.m. until 2 p.m., Thursday, June 28 in support of the seventh annual NASA Safety and Health Day activities, according to NASA's Brian Hey of Stennis' Office of Safety and Mission Assurance.

"Safety is NASA's top priority," Stennis Acting Director Mark Craig said. "It requires a constant, vigilant effort in all aspects of work for us to reach our goals. The decision to suspend all normal work activity during the stand-down in order to focus the center's attention on the importance NASA and NASA's contractors place on safety is to be applauded."

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Following successful testing of the Delta IV Common Booster Core (CBC), the 312-foot Delta Mariner, built by Halter Marine in Pascagoula for The Boeing Company, docks beside the B Test Complex at Stennis Space Center as the CBC is removed from the stand. The Delta Mariner was specifically designed to transport the Delta IV rockets. A unique feature of the Delta Mariner is its dual mode design that enables it to operate in a shallow draft mode while in rivers and canals and then ballast down to a deep draft mode for ocean passages.

NASA/Boeing partnership

Boeing's RS-68 Common Booster Core completes testing on Stennis test stand

The first production Boeing Delta IV Common Booster Core (CBC) recently completed a successful series of tests. It was loaded onto the Delta Mariner for transport to Cape Canaveral Air Force Station, Fla., May 24**.**

The CBC, the size of a commercial airplane fuselage, is the center of Boeing's Delta IV family of reusable launch vehicles. It houses the rocket's liquid-oxygen and liquid-hydrogen fuel tanks, the first-stage avionics and the RS-68 engine — a 656,000-pound thrust main engine, also being tested at Stennis.

In the spring of 1998, a landmark agreement between NASA and The

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Boeing's Delta IV Common Booster Core (CBC) was removed from the B Test Complex at Stennis and loaded onto the Delta Mariner for transport to Florida.

Stennis Acting Director Mark Craig, right, signs the Mississippi Gulf Coast Fire Protection Mutual Aid Agreement. Coordinating Stennis' participation in this unique agreement are NASA Fire Protection and Emergency Services Manager Clyde Dease, left, and standing, Stennis Fire Chief Ted Clark.

Stennis signs coastal mutual aid agreement

Stennis Space Center has signed the first coast-wide mutual aid agreement with the Hancock, Harrison and Jackson counties' fire departments to provide assistance for fires and other types of emergency incidents.

"Stennis strongly supports this step in bringing all the Gulf Coast fire departments together in support of one another during an emergency," Stennis Acting Director Mark Craig said. "No one department can match the combined resources and experience of the coastal fire protection departments."

According to NASA Fire Protection and Emergency Services Manager Clyde Dease, the Mississippi Gulf Coast Fire Protection Mutual Aid Agreement was established to provide for mutual assistance for fires, emergencies or disasters. "The departments will participate in multi-jurisdictional drills and exercises, training programs, pre-incident planning, post-incident critiques, and other activities to enhance safe and effective emergency operations," Dease said.

"The spirit of this agreement is to encour-

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Commercial version of NASA-developed hand-held plant stress monitor available

Consumers can now purchase a commercial version of a hand-held plant stress monitor that uses "point and shoot" technology to detect early signs of plant stress. The original imaging technology was developed and patented at NASA's Stennis Space Center.

Spectrum's Chlorophyll Meter

Spectrum Technologies Inc. of Plainfield, Ill., based on a patent license from NASA, is marketing the Spectrum™ CM 1000 Chlorophyll Meter for commercial use in its 2001 catalog.

Spectrum Technologies develops and internationally markets problem-solving tools for nutrient management, soil and water quality and integrated pest management.

The monitor, which measures the chlorophyll content in plants through the amount of light energy reflected from plants, can detect stress up to 16 days before plant deterioration is visible.

"Early detection of plant stress through chlorophyll loss can lead to healthier forests and more productive farms," said NASA's Dr. Greg Carter, an ecophysiologist at Stennis, who developed the monitor with NASA's Bruce Spiering, an electrical engineer.

In January 2000, NASA awarded Spectrum an exclusive patent license agreement to commercialize the monitor.

"This technology has come full-circle," NASA's Kirk Sharp, manager of the Office of Technology Transfer at Stennis, said. "Spectrum took NASA-developed technology and modified that technology to meet commercial demands. It is a textbook example of a technology transfer success story."

NEWSCLIPS

Droughts aggravated by dust in the wind — Windblown desert dust can choke rain clouds, cutting rainfall hundreds of miles away. This new discovery, made with the help of NASA satellites, suggests that droughts over arid regions are made worse by activities that expose and disrupt topsoil, such as grazing and agricultural cultivation.

NASA's Tropical Rainfall Measuring Mission (TRMM) spacecraft captured images of clouds over the Atlantic Ocean off the coast of northern Africa. Rain was falling only from the dust-free clouds even though all the clouds contained equal amounts of water. The research shows dust amplifies the process of creating deserts. TRMM is a joint U.S.-Japanese mission and part of NASA's Earth Science Enterprise at Goddard Space Flight Center, Greenbelt, Md.

A taste for comet water — In 1999, cosmochemist Geoff Blake and colleagues at Caltech showed that Comet Hale-Bopp contained too much heavy water to match Earth's oceans. Those findings triggered widespread reports that comets couldn't be a source of terrestrial water. Now Comet LINEAR, according to NASA's Goddard Space Flight Center, Greenbelt, Md., has shown Earth's oceans could hail from comets after all.

The findings published in May in the journal, *Science*, supports a controversial idea that cometary impacts billions of years ago could have provided most of the water in Earth's oceans.

Farmers will soon have a new tool for getting the most out of their fields — NASA's Aqua satellite will provide crucial information about the water in the ground and the weather on the horizon. Farmers will use data from NASA's Aqua satellite due to launch in December. Scientists at NASA's Global Hydrology and Climate Center at Marshall Space Flight Center, Huntsville, Ala., hope to be able to map the moisture content of soils over most of the Earth's surface. This information will also improve forecasts of potential rainfall and other meteorological factors such as winds, temperature and humidity. Better knowledge of water and weather should be a boon to agriculture.

Expedition Two Commander Yury Usachev and astronaut Jim Voss performed their first spacewalk on the International Space Station (ISS) June 8, completing all of their scheduled tasks smoothly and ahead of schedule.

Usachev and Voss entered the small, spherical transfer compartment at the forward end of the Zvezda Service Module to begin the first spacewalk at the ISS without the presence of a shuttle. They removed a hatch to open it to the vacuum of space and officially began the spacewalk at 9:21 a.m.

After lashing the hatch cover to the top of the compartment, they replaced it with a docking cone assembly. Using a rotating handle, they secured it firmly with the twelve roller-like hatches around its perimeter at 9:40 a.m., marking the official end of the spacewalk. With help from fellow crewmember Susan Helms, who stayed in the Zarya module and helped coordinate the spacewalk, the activity went very quickly. The 19-minute spacewalk had been expected to take 30 to 40 minutes. The docking cone was installed to prepare for the arrival of the Russian docking compartment, scheduled for later this year.

Expedition Two Crew flight engineer Jim Voss with one of the Russian Orlan spacesuits used to conduct the first spacewalk at the ISS without the presence of a shuttle.

Five Stennis Space Center employees recently were honored with NASA's Space Flight Awareness Award. The award program was established to prevent human error by instilling in civil service and contractor employees an awareness of personal responsibility for shuttle missions. Award recipients will travel to Kennedy Space Center for an upcoming Space Shuttle launch. Recipients include, from left, Lockheed Martin Space Operations' Bonnie Sanders of McNeill, Boeing/Rocketdyne's Edward Anderson of Slidell, La., NASA's James Huk of Pass Christian, Carmen Ramirez-Pagan also of Slidell, La., and Mississippi Space Services' Carl Williams of Picayune.

NASA launches first round of contracts to develop next generation of space travel

NASA announced the first round of contract awards May 17 in an Agency initiative to find a more affordable and reliable highway into space. The Space Launch Initiative (SLI) is a research and development effort designed to substantially improve safety and reduce the high cost of space travel.

The studies initiated with these awards are not intended to provide a specific vehicle design.

The SLI investment is expected to pay off with full-scale spacecraft development options by mid-decade.

"A second-generation reusable launch vehicle will open up the space frontier and significantly improve life on Earth," said Art Stephenson, director of NASA's Marshall Space Flight Center, Huntsville, Ala., which is leading the program.

"Through this new initiative, NASA's mission requirements will be met more efficiently, the U.S. launch industry can better compete in the international launch market, and our nation's leadership in space will continue to grow in the new century," Stephenson said.

NASA solicited proposals last fall and

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Second Generation Reusable Launch Vehicles Task Awards

(Base contracts with options, plus government task)

The Boeing Company Seal Beach, Calif.	$138,212
Lockheed Denver, Colo.	$94,319
Orbital Sciences Dulles, Va.	$53,128
Futron Bethesda, Md.	$1,856
Northrop/Grumman El Segundo, Calif.	$94,341
Oceaneering Houston, Texas	$5,347
North Carolina State University Raleigh, N.C.	$583
Materials Research & Design Bethlehem, Penn.	$13,353
Southern Research Institute Birmingham, Ala.	$1,633
Sierra Lobo Freemont, Ohio	$4,900

See **SLI TASK AWARD**, Page 7

Stennis coordination of satellite imagery project earns accolades

As manager of NASA's Earth Science Enterprise's Scientific Data Purchase (SDP) Project, Stennis Space Center coordinates the exchange of worldviews among more than 200 commercial, academic and governmental customers each year.

The $50 million program was announced in May 1997 in response to the President's Space Policy, directing NASA to purchase remote sensing data from the private sector.

According to NASA's Fritz Policelli, a project manager in Stennis' Geospace Applications and Development Directorate (GADD), the program is an opportunity to advance global-systems research, to strengthen the U.S. economy through development of remote sensing applications and to test a new way of doing business.

This new way of doing business has garnered kudos from national newscasters to the president of the Central American Commission on the Environment and Development (CCAD) for Stennis' SDP team and their colleagues at GADD.

As part of NASA's Earth Day celebration in April, NASA-TV provided a space view of some of America's most recognizable landmarks.

Working with NASA's Goddard Space Flight Center, Greenbelt, Md., the Stennis SDP team orchestrated efforts to collect and integrate data from the Terra and Landsat satellites, as well as from Ikonos — the world's first commercial high-resolution Earth-imaging satellite — to produce zoomed images of New York City's World Trade Center, Disney World's Epcot Center and Los Angeles' famous Hollywood sign. Local television news anchors frequently used words such as "amazing," "stunning," and "incredible" to describe the zooms.

This Ikonos image is of the landslide in Santa Tecla, El Salvador where the side of the mountain fell off and demolished an entire neighborhood. Over 500 people were killed in this landslide. The solid gray area indicates the landslide. The solid white area indicates where houses were demolished.

Also in April, GADD was requested to support work being done in the Mesoamerican Biological Corridor in El Salvador. Following devastating earthquakes in both January and February, NASA-funded investigators and researchers from the Salvadoran Ministry of the Environment and Natural Resources began the process of evaluating the impact of the quakes along the corridor.

Daniel Irwin of the National Space Science and Technology Center at Marshall Space Flight Center, Huntsville, Ala., assist-

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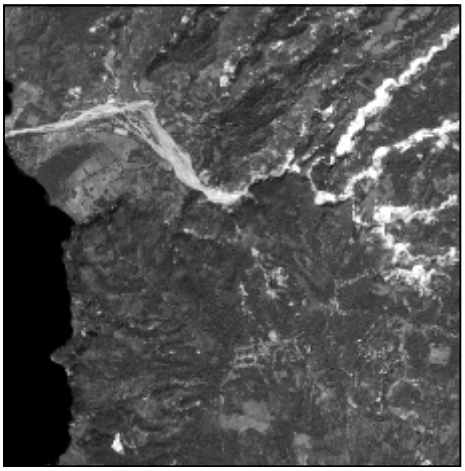


This image focuses on the western part of Lake Ilonpango in El Salvador where landslides on the slopes resulted in increased sedimentation in the river valleys and flooding.

ISO 14001. . .

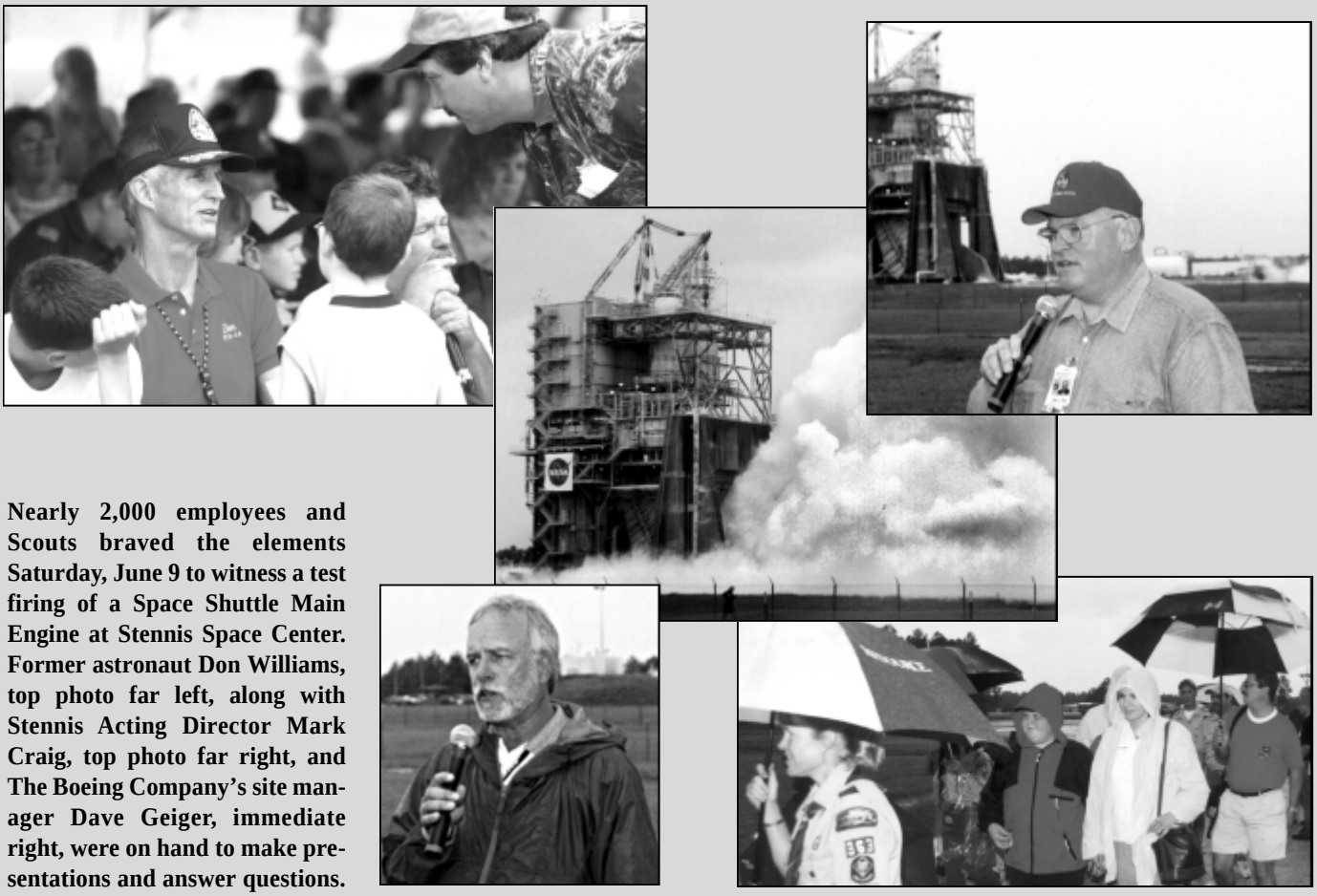
(Continued from Page 1)

contractor team deserve the distinction of being among the first in the Agency to earn this prestigious recognition," said NASA's Ron Magee, environmental officer at Stennis. "Their hard work and dedication to sound environmental performance, together with the center's history of being environmentally conscious, has made Stennis one of the true leaders in productivity, efficiency and environmental excellence."

"Our ISO 14001 implementation team did an excellent job of planning, training, communicating and completing all the necessary steps in preparation for the registration audits," said Stennis Acting Director Mark Craig.

NASA's Myron Webb, Stennis public affairs officer, right center, discusses the upcoming history round-table interview with participants. The two-hour videotaped session covered a period in Stennis history from 1994 to present and focused on the center's transition from a support center to NASA's lead center for propulsion test activities. NASA's Dr. Marco Giardino, left center, facilitated the discussion. Participants, clockwise from left, included Boeing's Jack Fabre, NASA's Pat Mooney, Lockheed Martin Space Operations' Gloria Jordan, and NASA's Robert Bruce, Larrie Kelly, Mike Cockrell and Boyce Mix.

Spectacular engine test excites employees and Scouts



Nearly 2,000 employees and Scouts braved the elements Saturday, June 9 to witness a test firing of a Space Shuttle Main Engine at Stennis Space Center. Former astronaut Don Williams, top photo far left, along with Stennis Acting Director Mark Craig, top photo far right, and The Boeing Company's site manager Dave Geiger, immediate right, were on hand to make presentations and answer questions.

White House honors NASA team for development of EMS project

Stennis Space Center, as part of a NASA team, received a prestigious 2001 White House Closing the Circle Award in ceremonies held June 12 in Washington, D.C., for development of the NASA Environmental Management System.

Along with NASA Headquarters, Stennis was one of three NASA centers to participate in a national pilot program to implement an Environmental Management System using the International Standards Organization's (ISO) 14001 criteria as a basis of the system.

"We were quite surprised to learn of this honor," NASA's Ron Magee, environmental officer at Stennis, said. "Although Stennis has always taken great strides to assure our environmental stewardship and compliance through the years, the development of this ISO 14001 program to meet international standards has taken considerable effort on the part of many different organizations and personnel at the center and throughout NASA. Being singled out from within the federal government for development of this program is significant."

The White House awards program was established seven years ago to recognize federal employees and their facilities for significant contributions to the environment or important impacts on the environment, and to tell success stories that can serve as examples for other federal facilities to follow.

Ruth Roper of Independence, La., left, was recognized by NASA's Linda Theobald of the Stennis Public Affairs Office, right, as StenniSphere's 250,000th visitor May 22. Roper received gifts of a NASA T-shirt, key chain and coffee mug. Roper visited StenniSphere with her daughter, Marilyn Roper, and 5-year-old grandson, William Caldwell. Since reopening May 25, 2000, StenniSphere has more than doubled its visitor count.

Old Timer's Day celebrated at Stennis

♦ **For the 2001 Old Timer's Day, Stennis Space Center recognized those employees who came to work at Stennis between May 17, 1962, when the first tree was cut to begin construction of the center, and April 23, 1966, when the first Saturn engine was tested for the Apollo program. Members of this veteran group posed for a photo in front of the F-1 engine at StenniSphere's rocket park on the afternoon of the Old Timer's Day reunion May 18.**

♦ **NASA retiree Mark Payne and his wife, Ann, take time to assist the History Office in identifying historical photos of Stennis during the Old Timer's Day picnic. Payne was one of the founding members of the Stennis Chapter of the NASA Alumni League.**

CBC. . .

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Boeing Company was reached to conduct RS-68 rocket engine testing at Stennis Space Center.

Less than six months later in October, Boeing announced its decision to not only test the RS-68 engine at Stennis but to assemble it at the center as well. The decision, expected to bring 100 technical and manufacturing jobs and keep the space center's B-1 test stand busy for another 20 years, marked a financial commitment from Boeing to NASA of more than $27 million in facilities upgrades.

"Stennis' involvement with the commercial programs, RS-68 and CBC, are very significant events," NASA's Boyce Mix, director of the Propulsion Test Directorate at Stennis, said. "It demonstrates that Stennis Space Center can compete and market test services at a competitive rate. The long-term RS-68 program provides funding for our infrastructure support."

"Boeing's goals for the RS-68 are deeply rooted in the Evolved Expendable Launch Vehicle program as outlined in the National Space Transportation Policy," Dave Geiger, Boeing site director at Stennis, said. "Our partnership with Stennis is significant in our success."

The first RS-68 engine assembled at Stennis completed its first series of hotfire tests in March 2000. The first main test of the RS-68 engine in combination with the CBC was made March 17, for a duration of 15 seconds. The powerful combination reached its final milestone May 6 with a 303-second duration test. The day before, at the adjacent B-1 test stand, Boeing ran a successful RS-68 single engine test that lasted 425 seconds, achieving another milestone for the Delta IV program.

"During the CBC testing program, the Stennis team contributed to the success of these efforts by providing support which allowed Boeing to conduct two- and three-day turnarounds between tests," Boeing's Jim Wahl, project manager for RS-68 Assembly and Test Operations at Stennis, said.

The RS-68 program now moves into the production stage, according to Geiger. The first production engine was installed on the B-1 test stand June 3 in preparation for the acceptance test series. Plans are for the Stennis facility to produce as many as 40 RS-68 engines annually. "As production ramps up, so will employment," Geiger said. The first launch of the Delta IV is scheduled for spring 2002.

STAND-DOWN . . .

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Bruce Wilkinson, a motivational humorist and corporate trainer from Gretna, La., will kick off the day's activities at 9 a.m. in the StenniSphere auditorium. NASA astronauts will be on hand to make Silver Snoopy Award presentations.

The Silver Snoopy Award recognizes individuals for professional dedication and outstanding support that greatly enhances flight safety and mission success in the Space Shuttle program.

MSS, The Boeing Company and LMSO will conduct staff and employee awareness workshops. Stennis internal TV will air programs covering a number of safety-related topics.

"Additionally, there will be numerous vendors with exhibits and displays set up in the Atrium of Building 1100 from 10 a.m. until 2 p.m.," Hey said. "The day is aimed at encouraging a safe attitude in all things that we do at home and here in the workplace."

For more information, call Hey at Ext. 1249.

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age the development of cooperative procedures and protocols, including — but not limited to — joint purchasing, communications coordination, training, health and safety, fire prevention, public education, fire investigation, and other activities that will enhance the ability of the fire departments to fulfill their missions."

Stennis Fire Chief Ted Clark explained that each fire department has supplied a detailed list of equipment available to handle emergencies such as train derailments, hazardous material operations and other possible situations for which a single small department may not be equipped. "This is an excellent opportunity for us at Stennis," Chief Clark said. "Our participation in this agreement shows that we are committed to our neighbors."

Dr. Allan Falconer, left, executive director of the Mississippi Space Commerce Initiative at Stennis Space Center, recently received an award in recognition of his outstanding services to the promotion of workforce development in the remote sensing area from Dr. Bill McHenry, right, assistant commissioner of Academic Affairs, Mississippi Institutions of Higher Learning, at the second annual GIS/Remote Sensing Conference held on the campus of Delta State University in Cleveland on May 3-4.

SLI AWARDS . . .

(Continued from Page 3)

announced the first round of contract awards May 17 in an Agency initiative to find a more affordable and reliable highway into space. The SLI is a research and development effort designed to substantially improve safety and reduce the high cost of space travel.

The studies initiated with these awards are not intended to provide a specific vehicle design.

SLI TASK AWARDS . . .

(Continued from Page 3)

PHPK Technologies, Westerfield, Ohio $7,657

Honeywell, Glendale/Torrance, Calif. $11,494

General Kinetics, Chantilly, Va. $376

Boeing/Rocketdyne, Canoga Park, Calif. $65,409

MOOG, East Aurora, N.Y. $501

Pratt & Whitney, West Palm Beach, Fla. $125,817

Universal Space Lines, Newport Beach, Calif.. . . . .$6,545

Ohio University, Athens, Ohio $4,393

TRW, Redondo Beach, Calif. $15,544

Aerojet, Sacramento, Calif. $7,607

Andrews Space & Technology, Seattle, Wash. $3,017

Kistler, Seattle, Wash. $135,400

Stennis Educator Resource Center announces workshops scheduled for July

The Stennis Educator Resource Center has announced its Educator Workshop schedule for July:

- Introduction to Access – July 10 for teachers grades K-12
- Math-N-Motion – July 11 for teachers Pre-K-1
- Science Fair Projects – July 12 for teachers grades 3-9
- Book-A-Mania – July 13 for teachers grades Pre-K-1
- Environmental Activities You Can Use – July 19 for teachers grades 3-6

The workshops are free, but reservations are required because of limited seating. For more information, use either of the following numbers: In Mississippi call (800) 237-1821 (select option 2) outside Mississippi, call (228) 688-3338. When registering by phone, please call between 7 a.m. and 3 p.m., Monday through Friday.

Mississippi and Louisiana educators are able to renew teaching certificates with CEU credits from approved workshops.

Safety Corner

Prevent lawn mower injuries

Each year, more than 74,000 small children, adolescents and adults are injured by rotary, hand and riding power lawn mowers due to improper handling.

According to the American Society for Surgery of the Hand, injuries usually occur in adults between the ages of 25 and 64 and in children under five. Twenty-two percent of all injuries involve the wrist, hand or finger; 14 percent involve foot, ankle or toes; and 25 percent of all hand and foot injuries result in amputation.

Causes of Injuries

- Passengers (adult/child) on riding mowers or in carts towed behind mowers
- Sloping lawn mowed by riding mower across slope, instead of up and down
- Operator attempts to unclog blades with hand or foot

Recommendations

1. Read your mower's instruction manual prior to use. DO NOT REMOVE safety devices or guards on switches.
2. NEVER insert hands or feet into the mower to remove grass or debris. Even with the motor turned off, the blade remains engaged.
4. NEVER cut grass when it is wet or when the ground is damp.
5. NEVER allow a child to play in the area being mowed.

QUICK LOOK

■ **The Annual NASA Shrimp Boil** is scheduled Friday, June 22 at the Cypress House pavilion. The event is open to NASA employees, their families, retirees and guests. Tickets are $3 until noon, June 21 and $4 the day of the event. For more information, contact Toni Watkins at Ext. 2042.

■ **The University of Southern Mississippi-Gulf Coast** will offer a three-day training course on liquid rocket engine design Aug. 1-3, from 8 a.m. - 4:30 p.m., in the Stennis Conference Center. This course, approved for 1.8 CEUs through USM, explores the liquid rocket engine design problem from a system level. Deadline for registration is July 9. To register, call (228) 867-8777.

■ **The NASA Speaker's Bureau Program at Stennis** is made up of volunteer scientists, engineers and other employees available for lectures and presentations along the Mississippi Gulf Coast and throughout southeast Louisiana. For information, contact Jeanie Maxwell at Ext. 1032 or visit *www.ssc.nasa.gov/public/speaker/.*

■ **The USS John C. Stennis, stationed in Hawaii,** recently served as the stage for the opening night premiere of the film, *Pearl Harbor.*

IKONOS . . .

(Continued from Page 4)

ed in the coordinating the activity on the site in El Salvador.

The Minister, Ana Maria Majano, who is also the president of CCAD, was overwhelmed, gracious and enthusiastic to obtain the data, Irwin said.

Stennis' quick response to the data request and the staff's sensitivity to the Salvadorians' needs made the success of the project possible.

El Salvador will use the data, according to Irwin, to determine the impact of the earthquakes to the Mesoamerican Biological Corridor and develop plans for relocating the thousands of people whose homes and villages were destroyed and to rebuild their lives, their industries, and perhaps, better protect themselves from future catastrophes.

"Stennis has an important opportunity to support a broad range of research and applications that contribute to the quality of life," Policelli said.

Stennis kicks off 2001 Savings Bond Drive

U.S. Department of Treasury officer Vicki Martinson helped kick off the 2001 Stennis Savings Bond Drive, "It's Our Time to Dream," June 14. The campaign will run until June 28.

For additional information, contact Nancy Sullivan, at Ext. 1883.

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center, National Aeronautics and Space Administration. Mark Craig is the acting director, Myron Webb is the public affairs officer, and Lanee Cooksey is the news chief. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 208D, Stennis Space Center, MS 39529, or call (228) 688-3585.

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